

**Sequence Listing****10 / 524530****0701 Rec'd PCT/PTC 11 FEB 2005**

<110> LG Life Sciences, Ltd.  
<120> Gene families associated with liver cancer  
<130> PC03016-LG  
<150> US 60/402,905  
<151> 2002-08-14  
<150> US 60/403,651  
<151> 2002-08-16  
<160> 10  
<170> KopatentIn 1.71  
<210> 1  
<211> 578  
<212> DNA  
<213> Homo sapiens  
<220>  
<221> CDS  
<222> (155)..(418)  
<223> Gene LBFL302, Clone BC4

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accggattgt tttcgctggc ccagtgtccc cggagcttgt gtgcgataaca gagagcacct		120
cggaagctga ggcagctggt acttgacaga gagg	atg gcg ctg tcg acc	169
	Met Ala Leu Ser Thr	
	1 5	
ata gtc tcc cag agg aag cag ata aag cgg aag gct ccc cgt ggc ttt		217
Ile Val Ser Gln Arg Lys Gln Ile Lys Arg Lys Ala Pro Arg Gly Phe		
10 15 20		

# Sequence Listing

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cta aag cga gtc ttc aag cga aag aag cct caa ctt cgt ctg gag aaa 265  
 Leu Lys Arg Val Phe Lys Arg Lys Lys Pro Gln Leu Arg Leu Glu Lys  
 25 30 35

agt ggt gac tta ttg gtc cat ctg aac tgt tta ctg ttt gtt cat cga 313  
 Ser Gly Asp Leu Leu Val His Leu Asn Cys Leu Leu Phe Val His Arg  
 40 45 50

tta gca gaa gag tcc agg aca aac gct tgt gcg agt aaa tgt aga gtc 361  
 Leu Ala Glu Glu Ser Arg Thr Asn Ala Cys Ala Ser Lys Cys Arg Val  
 55 60 65

att aac aag gag .cat gta ctg gcc gca gca aag gta att cta aag aag 409  
 Ile Asn Lys Glu His Val Leu Ala Ala Lys Val Ile Leu Lys Lys  
 70 75 80 85

agc aga ggt ta gaagtcaaag aacatattct tgaaagttat gatgcattct 460  
 Ser Arg Gly

tttgggttgt aacagatcat aaagacattt tttcacacatc agttaatatg ggattattaa 520

atattggcta taaaaaaaaaaa aaaaaaaaaaaa aaaaaaaaaaaa aaaaaaaaaaaa 578

<210> 2  
<211> 88  
<212> PRT  
<213> Homo sapiens

<400> 2  
Met Ala Leu Ser Thr Ile Val Ser Gln Arg Lys Gln Ile Lys Arg Lys  
1 5 10 15

Ala Pro Arg Gly Phe Leu Lys Arg Val Phe Lys Arg Lys Lys Pro Gln  
20 25 30

Leu Arg Leu Glu Lys Ser Gly Asp Leu Leu Val His Leu Asn Cys Leu  
35 40 45

Leu Phe Val His Arg Leu Ala Glu Glu Ser Arg Thr Asn Ala Cys Ala

# Sequence Listing

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50	55	60
Ser Lys Cys Arg Val Ile Asn Lys Glu His Val Leu Ala Ala Ala Lys		
65	70	75
Val Ile Leu Lys Lys Ser Arg Gly		
85		

<210> 3  
<211> 531  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (139)..(402)  
<223> Gene LBFL302, Clone BC7

<b>&lt;400&gt; 3</b>		
cccacgcgtc cggagggttt tctgcctgaa gaagcgtcat acggaccgga ttgtttcgc	60	
tggcccaagtg tccccggagc ttgtgtgcga tacagagagc acctcggaa ctgaggcagc	120	
tggtacttga cagagagg atg gcg ctg tcg acc ata gtc tcc cag agg aag	171	
Met Ala Leu Ser Thr Ile Val Ser Gln Arg Lys		
1 5 10		
cag ata aag cgg aag gct ccc cgt ggc ttt cta aag cga gtc ttc aag	219	
Gln Ile Lys Arg Lys Ala Pro Arg Gly Phe Leu Lys Arg Val Phe Lys		
15 20 25		
cta aag aag cct caa ctt cgt ctg gag aaa agt ggt gac tta ttg gtc	267	
Leu Lys Lys Pro Gln Leu Arg Leu Glu Lys Ser Gly Asp Leu Leu Val		
30 35 40		
cat ctg aac tgt tta ctg ttt gtt cat cga tta gca gaa gag tcc agg	315	
His Leu Asn Cys Leu Leu Phe Val His Arg Leu Ala Glu Glu Ser Arg		
45 50 55		

## Sequence Listing

aca aac gct tgt gcg agt aaa tgt aga gtc att aac aag gag cat gta  
 Thr Asn Ala Cys Ala Ser Lys Cys Arg Val Ile Asn Lys Glu His Val  
 60 65 70 75

ctg gcc gca gca aag gta att cta aag aag agc aga ggt tagaagtc 410  
Leu Ala Ala Ala Lys Val Ile Leu Lys Lys Ser Arg Gly  
80 85 .

aaagaacata ttcttgaaag ttatgtatgca ttcttttggg tggtaacaqa tcataaaagac 470

attttttaca catcagttaa tatqqqgatta tttaaatatttq gatataaaaaaaa aaaaaaaaaaaa 520

a . 531

<210> 4

<211> 88

<212> PRT

<213> Homo sapiens

<400> 4

Met Ala Le

1

20                    25                    30

Leu Arg Leu Glu Lys Ser Gly Asp Leu Leu Val His Leu Asn Cys Leu  
 35                    40                    45

Leu Phe Val His Arg Leu Ala Glu Glu Ser Arg Thr Asn Ala Cys Ala  
50 55 60

Ser Lys Cys Arg Val Ile Asn Lys Glu His Val Leu Ala Ala Ala Lys  
 65                    70                    75                    80

Val Ile Leu Lys Lys Ser Arg Gly

85

# Sequence Listing

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<210> 5  
<211> 2067  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (32)..(1384)  
<223> Clone GE6

<400> 5-

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	Met Asp Gly Thr Glu	
	1 5	

acc cgg cag cgg agg ctg gac agc tgt ggc aag cca ggg gag ctg ggg	94
Thr Arg Gln Arg Arg Leu Asp Ser Cys Gly Lys Pro Gly Glu Leu Gly	
10 15 20	

ctt cct cac ccc ctc agc aca gga gga ctc cct gta gcc tca gaa gat	142
Leu Pro His Pro Leu Ser Thr Gly Gly Leu Pro Val Ala Ser Glu Asp	
25 30 35	

gga gct ctc agg gcc cct gag agc caa agc gtg acc ccc aag cca ctg	190
Gly Ala Leu Arg Ala Pro Glu Ser Gln Ser Val Thr Pro Lys Pro Leu	
40 45 50	

gag act gag cct agc agg gag acc gcc tgg tcc ata ggc ctt cag gtg	238
Glu Thr Glu Pro Ser Arg Glu Thr Ala Trp Ser Ile Gly Leu Gln Val	
55 60 65	

acc gtg ccc ttc atg ttt gca ggc ctg gga ctg tcc tgg gcc ggc atg	286
Thr Val Pro Phe Met Phe Ala Gly Leu Ser Trp Ala Gly Met	
70 75 80 85	

ctt ctg gac tat ttc cag gcc aac act gga caa att gat gac ccc cag	334
Leu Leu Asp Tyr Phe Gln Ala Asn Thr Gly Gln Ile Asp Asp Pro Gln	
90 95 100	

# Sequence Listing

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gag cag cac aga gtc atc agc aac ctg gcc ctc atc cag gtg cag		382
Glu Gln His Arg Val Ile Ser Ser Asn Leu Ala Leu Ile Gln Val Gln		
105	110	115
gcc act gtc gtg ggg ctc ttg gct gtc gtg gct gcg ctg ctg ttg ggc		430
Ala Thr Val Val Gly Leu Leu Ala Ala Val Ala Ala Leu Leu Leu Gly		
120	125	130
gtg gtg tct cga gag gaa gtg gat gtc gcc aag gtg gag ttg ctg tgt		478
Val Val Ser Arg Glu Glu Val Asp Val Ala Lys Val Glu Leu Leu Cys		
135	140	145
gcc agc agt gtc ctc act gcc ttc ctt gca gcc ttt gcc ctg ggg gtg		526
Ala Ser Ser Val Leu Thr Ala Phe Leu Ala Ala Phe Ala Leu Gly Val		
150	155	160
165		
ctg atg gtc tgt ata gtg att ggt gct cga aag ctc ggg gtc aac cca		574
Leu Met Val Cys Ile Val Ile Gly Ala Arg Lys Leu Gly Val Asn Pro		
170	175	180
gac aac att gcc acg ccc att gca gcc agc ctg gga gac ctc atc aca		622
Asp Asn Ile Ala Thr Pro Ile Ala Ala Ser Leu Gly Asp Leu Ile Thr		
185	190	195
ctg tcc att ctg gct ttg gtt agc agc ttc ttc tac aga cac aaa gat		670
Leu Ser Ile Leu Ala Leu Val Ser Ser Phe Phe Tyr Arg His Lys Asp		
200	205	210
agt cgg tat ctg acg ccg ctg gtc tgc ctc agc ttt gcg gct ctg acc		718
Ser Arg Tyr Leu Thr Pro Leu Val Cys Leu Ser Phe Ala Ala Leu Thr		
215	220	225
cca gtg tgg gtc ctc att gcc aag cag agc cca ccc atc gtg aag atc		766
Pro Val Trp Val Leu Ile Ala Lys Gln Ser Pro Pro Ile Val Lys Ile		
230	235	240
245		
ctg aag ttt ggc tgg ttc cca atc atc ctg gcc atg gtc atc agc agt		814
Leu Lys Phe Gly Trp Phe Pro Ile Ile Leu Ala Met Val Ile Ser Ser		
250	255	260

## **Sequence Listing**

ttc gga gga ctc atc ttg agc aaa acc gtt tct aaa cag cag tac aaa			862
Phe Gly Gly Leu Ile Leu Ser Lys Thr Val Ser Lys Gln Gln Tyr Lys			
265	270	275	
ggc atg gcg ata ttt acc ccc gtc ata tgt ggt gtt ggc aat ctg			910
Gly Met Ala Ile Phe Thr Pro Val Ile Cys Gly Val Gly Asn Leu			
280	285	290	
gtg gcc att cag acc agc cga atc tca acc tac ctg cac atg tgg agt			958
Val Ala Ile Gln Thr Ser Arg Ile Ser Thr Tyr Leu His Met Trp Ser			
295	300	305	
gca cct ggc gtc ctg ccc ctc cag atg aag aaa ttc tgg ccc aac ccg			1006
Ala Pro Gly Val Leu Pro Leu Gln Met Lys Lys Phe Trp Pro Asn Pro			
310	315	320	325
tgt tct act ttc tgc acg tca gaa atc aat tcc atg tca gct cga gtc			1054
Cys Ser Thr Phe Cys Thr Ser Glu Ile Asn Ser Met Ser Ala Arg Val			
330	335	340	
ctg ctc ttg ctg gtg gtc cca ggc cat ctg att ttc ttc tac atc atc			1102
Leu Leu Leu Val Val Pro Gly His Leu Ile Phe Phe Tyr Ile Ile			
345	350	355	
tac ctg gtg gag ggt cag tca gtc ata aac agc cag acc ttt gtg gtg			1150
Tyr Leu Val Glu Gly Gln Ser Val Ile Asn Ser Gln Thr Phe Val Val			
360	365	370	
ctc tac ctg ctg gca ggc ctg atc cag gtg aca atc ctg ctg tac ctg			1198
Leu Tyr Leu Leu Ala Gly Leu Ile Gln Val Thr Ile Leu Leu Tyr Leu			
375	380	385	
gca gaa gtg atg gtt cgg ctg act tgg cac cag gcc ctg gat cct gac			1246
Ala Glu Val Met Val Arg Leu Thr Trp His Gln Ala Leu Asp Pro Asp			
390	395	400	405
aac cac tgc atc ccc tac ctt aca ggg ctg ggg gac ctg ctc ggt act			1294
Asn His Cys Ile Pro Tyr Leu Thr Gly Leu Gly Asp Leu Leu Gly Thr			
410	415	420	

## Sequence Listing

ggc ctc gca ctc tgc ttt ttc act gac tgg cta ctg aag agc aag	1342	
Gly Leu Leu Ala Leu Cys Phe Phe Thr Asp Trp Leu Leu Lys Ser Lys		
425	430	435
gca gag ctg ggt ggc atc tca gaa ctg gca tct gga cct ccc	1389	
Ala Glu Leu Gly Gly Ile Ser Glu Leu Ala Ser Gly Pro Pro		
440	445	450
ggcccccgctg gtcccattttgcatttagaa ttccctctca catcagtggg atacagaatt	1450	
cagtttctcc cttgccaggat cttgggatg gttgaccctt gctctgcag tagccttttgc	1510	
ttagtctgct aaggtagctc tcacacacctt cggctctggg gttgataacctt gagcctgc当地	1570	
tagagccctg aaatcaagag catggcttga gtgtgtgaat atgatgtgtg cacatgttta	1630	
atgagcgtgc aagtgtgcac acgtttgtgg agaggagggtt gttctggcctt gagaaggtaa	1690	
agaagaggca tgtccagttt gctttgcagg gtgtgtttgc tctttccat gcccattgcaa	1750	
cccaagatgg ggtggagcag gaaggagctc ttttctgttc ccaaggctca gaactcttga	1810	
gctgtggctt acttgctgtc ttcaccaggat tcaagctccg tggccacac tgctgctgtg	1870	
ccaagaaggt gtacagcctc cccaggatgg ggcctcataac aacccttcat ctgcactcaa	1930	
catttaatcg tgtccttgct gtcttttat tttccctttt gtttgttagc aaaaacctct	1990	
attttagattt caataatcag agaagtgtaa aataaaaacag attatattgt aaaaaaaaaaa	2050	
aaaaaaaaaaaa aaaaaaaaaa	2067	

<210> 6  
<211> 451  
<212> PRT  
<213> *Homo sapiens*  
  
<400> 6

## Sequence Listing

Met Asp Gly Thr Glu Thr Arg Gln Arg Arg Leu Asp Ser Cys Gly Lys  
1 5 10 15

Pro Gly Glu Leu Gly Leu Pro His Pro Leu Ser Thr Gly Gly Leu Pro  
20 25 30

Val Ala Ser Glu Asp Gly Ala Leu Arg Ala Pro Glu Ser Gln Ser Val  
35 40 45

Thr Pro Lys Pro Leu Glu Thr Glu Pro Ser Arg Glu Thr Ala Trp Ser  
50 55 60

Ile Gly Leu Gln Val Thr Val Pro Phe Met Phe Ala Gly Leu Gly Leu  
65 70 75 80

Ser Trp Ala Gly Met Leu Leu Asp Tyr Phe Gln Ala Asn Thr Gly Gln  
85 90 95

Ile Asp Asp Pro Gln Glu Gln His Arg Val Ile Ser Ser Asn Leu Ala  
100 105 110

Leu Ile Gln Val Gln Ala Thr Val Val Gly Leu Leu Ala Ala Val Ala  
115 120 125

Ala Leu Leu Leu Gly Val Val Ser Arg Glu Glu Val Asp Val Ala Lys  
130 135 140

Val Glu Leu Leu Cys Ala Ser Ser Val Leu Thr Ala Phe Leu Ala Ala  
145 150 155 160

Phe Ala Leu Gly Val Leu Met Val Cys Ile Val Ile Gly Ala Arg Lys  
165 170 175

Leu Gly Val Asn Pro Asp Asn Ile Ala Thr Pro Ile Ala Ala Ser Leu  
180 185 190

Gly Asp Leu Ile Thr Leu Ser Ile Leu Ala Leu Val Ser Ser Phe Phe  
195 200 205

Tyr Arg His Lys Asp Ser Arg Tyr Leu Thr Pro Leu Val Cys Leu Ser

## Sequence Listing

210                    215                    220  
Phe Ala Ala Leu Thr Pro Val Trp Val Leu Ile Ala Lys Gln Ser Pro  
225                    230                    235                    240  
  
Pro Ile Val Lys Ile Leu Lys Phe Gly Trp Phe Pro Ile Ile Leu Ala  
245                    250                    255  
  
Met Val Ile Ser Ser Phe Gly Gly Leu Ile Leu Ser Lys Thr Val Ser  
260                    265                    270  
  
Lys Gln Gln Tyr Lys Gly Met Ala Ile Phe Thr Pro Val Ile Cys Gly  
275                    280                    285  
  
Val Gly Gly Asn Leu Val Ala Ile Gln Thr Ser Arg Ile Ser Thr Tyr  
290                    295                    300  
  
Leu His Met Trp Ser Ala Pro Gly Val Leu Pro Leu Gln Met Lys Lys  
305                    310                    315                    320  
  
Phe Trp Pro Asn Pro Cys Ser Thr Phe Cys Thr Ser Glu Ile Asn Ser  
325                    330                    335  
  
Met Ser Ala Arg Val Leu Leu Leu Val Val Pro Gly His Leu Ile  
340                    345                    350  
  
Phe Phe Tyr Ile Ile Tyr Leu Val Glu Gly Gln Ser Val Ile Asn Ser  
355                    360                    365  
  
Gln Thr Phe Val Val Leu Tyr Leu Leu Ala Gly Leu Ile Gln Val Thr  
370                    375                    380  
  
Ile Leu Leu Tyr Leu Ala Glu Val Met Val Arg Leu Thr Trp His Gln  
385                    390                    395                    400  
  
Ala Leu Asp Pro Asp Asn His Cys Ile Pro Tyr Leu Thr Gly Leu Gly  
405                    410                    415  
  
Asp Leu Leu Gly Thr Gly Leu Leu Ala Leu Cys Phe Phe Thr Asp Trp  
420                    425                    430

# Sequence Listing

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Leu Leu Lys Ser Lys Ala Glu Leu Gly Gly Ile Ser Glu Leu Ala Ser  
 435                          440                          445

Gly Pro Pro  
 450

<210> 7  
 <211> 2178  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (41)..(1501)  
 <223> Clone MB5

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 Met Asp Gly Thr Glu  
 1                                  5

acc cgg cag cgg agg ctg gac agc tgc aag cca ggg gag ctg ggg                          103  
 Thr Arg Gln Arg Arg Leu Asp Ser Cys Gly Lys Pro Gly Glu Leu Gly  
 10                                  15                                  20

ctt cct cac ccc ctc agc aca gga gga ctc cct gta gcc tca gaa gat                          151  
 Leu Pro His Pro Leu Ser Thr Gly Gly Leu Pro Val Ala Ser Glu Asp  
 25                                  30                                  35

gga gct ctc agg gcc cct gag agc caa agc gtg acc ccc aag cca ctg                          199  
 Gly Ala Leu Arg Ala Pro Glu Ser Gln Ser Val Thr Pro Lys Pro Leu  
 40                                  45                                  50

gag act gag cct agc agg gag acc gcc tgg tcc ata ggc ctt cag gtg                          247  
 Glu Thr Glu Pro Ser Arg Glu Thr Ala Trp Ser Ile Gly Leu Gln Val  
 55                                  60                                  65

# Sequence Listing

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acc gtg ccc ttc atg ttt gca ggc ctg gga ctg tcc tgg gcc ggc atg			295
Thr Val Pro Phe Met Phe Ala Gly Leu Gly Leu Ser Trp Ala Gly Met			
70	75	80	85
ctt ctg gac tat ttc cag cac tgg cct gtg ttt gtg gag gtg aaa gac			343
Leu Leu Asp Tyr Phe Gln His Trp Pro Val Phe Val Val Lys Asp			
90	95	100	
ctt ttg aca ttg gtg ccg ccc ctg gtg ggc ctg aag ggg aac ctg gag			391
Leu Leu Thr Leu Val Pro Pro Leu Val Gly Leu Lys Gly Asn Leu Glu			
105	110	115	
atg aca ctg gca tcc aga ctc tcc aca gct gcc aac act gga caa att			439
Met Thr Leu Ala Ser Arg Leu Ser Thr Ala Ala Asn Thr Gly Gln Ile			
120	125	130	
gat gac ccc cag gag cag cac aga gtc atc agc agc aac ctg gcc ctc			487
Asp Asp Pro Gln Glu Gln His Arg Val Ile Ser Ser Asn Leu Ala Leu			
135	140	145	
atc cag gtg cag gcc act gtc gtg ggg ctc ttg gct gct gtg gct gcg			535
Ile Gln Val Gln Ala Thr Val Val Gly Leu Leu Ala Ala Val Ala Ala			
150	155	160	165
ctg ctg ttg ggc gtg gtg tct cga gag gaa gtg gat gtc gcc aag gtg			583
Leu Leu Leu Gly Val Val Ser Arg Glu Glu Val Asp Val Ala Lys Val			
170	175	180	
gag ttg ctg tgt gcc agc agt gtc ctc act gcc ttc ctt gca gcc ttt			631
Glu Leu Leu Cys Ala Ser Ser Val Leu Thr Ala Phe Leu Ala Ala Phe			
185	190	195	
gcc ctg ggg gtg ctg atg gtc tgt ata gtg att ggt gct cga aag ctc			679
Ala Leu Gly Val Leu Met Val Cys Ile Val Ile Gly Ala Arg Lys Leu			
200	205	210	
ggg gtc aac cca gac aac att gcc acg ccc att gca gcc agc ctg gga			727
Gly Val Asn Pro Asp Asn Ile Ala Thr Pro Ile Ala Ala Ser Leu Gly			
215	220	225	

## **Sequence Listing**

gac ctc atc aca ctg tcc att ctg gct ttg gtt agc agc ttc ttc tac			775
Asp Leu Ile Thr Leu Ser Ile Leu Ala Leu Val Ser Ser Phe Phe Tyr			
230	235	240	245
aga cac aaa gat agt cggtat ctg acg ccg ctg gtc tgc ctc agc ttt			823
Arg His Lys Asp Ser Arg Tyr Leu Thr Pro Leu Val Cys Leu Ser Phe			
250	255	260	
gcg gct ctg acc cca gtg tgg gtc ctc att gcc aag cag agc cca ccc			871
Ala Ala Leu Thr Pro Val Trp Val Leu Ile Ala Lys Gln Ser Pro Pro			
265	270	275	
atc gtg aag atc ctg aag ttt ggc tgg ttc cca atc atc ctg gcc atg			919
Ile Val Lys Ile Leu Lys Phe Gly Trp Phe Pro Ile Ile Leu Ala Met			
280	285	290	
gtc atc agc agt ttc gga gga ctc atc ttg agc aaa acc gtt tct aaa			967
Val Ile Ser Ser Phe Gly Gly Leu Ile Leu Ser Lys Thr Val Ser Lys			
295	300	305	
cag cag tac aaa ggc atg gcg ata ttt acc ccc gtc ata tgt ggt gtt			1015
Gln Gln Tyr Lys Gly Met Ala Ile Phe Thr Pro Val Ile Cys Gly Val			
310	315	320	325
ggc ggc aat ctg gtg gcc att cag acc agc cga atc tca acc tac ctg			1063
Gly Gly Asn Leu Val Ala Ile Gln Thr Ser Arg Ile Ser Thr Tyr Leu			
330	335	340	
cac atg tgg agt gca cct ggc gtc ctg ccc ctc cag atg aag aaa ttc			1111
His Met Trp Ser Ala Pro Gly Val Leu Pro Leu Gln Met Lys Lys Phe			
345	350	355	
tgg ccc aac ccg tgt tct act ttc tgc acg tca gaa atc aat tcc atg			1159
Trp Pro Asn Pro Cys Ser Thr Phe Cys Thr Ser Glu Ile Asn Ser Met			
360	365	370	
tca gct cga gtc ctg ctc ttg ctg gtg gtc cca ggc cat ctg att ttc			1207
Ser Ala Arg Val Leu Leu Leu Val Val Pro Gly His Leu Ile Phe			
375	380	385	

## **Sequence Listing**

ttc tac atc atc tac ctg gtg gag ggt cag tca gtc ata aac agc cag			1255
Phe Tyr Ile Ile Tyr Leu Val Glu Gly Gln Ser Val Ile Asn Ser Gln			
390	395	400	405
acc ttt gtg gtg ctc tac ctg ctg gca ggc ctg atc cag gtg aca atc			1303
Thr Phe Val Val Leu Tyr Leu Ala Gly Leu Ile Gln Val Thr Ile			
410	415	420	
ctg ctg tac ctg gca gaa gtg atg gtt cgg ctg act tgg cac cag gcc			1351
Leu Leu Tyr Leu Ala Glu Val Met Val Arg Leu Thr Trp His Gln Ala			
425	430	435	
ctg gat cct gac aac cac tgc atc ccc tac ctt aca ggg ctg ggg gac			1399
Leu Asp Pro Asp Asn His Cys Ile Pro Tyr Leu Thr Gly Leu Gly Asp			
440	445	450	
ctg ctc ggt act ggc ctc ctg gca ctc tgc ttt ttc act gac tgg cta			1447
Leu Leu Gly Thr Gly Leu Leu Ala Leu Cys Phe Phe Thr Asp Trp Leu			
455	460	465	
ctg aag agc aag gca gag ctg ggt ggc atc tca gaa ctg gca tct gga			1495
Leu Lys Ser Lys Ala Glu Leu Gly Gly Ile Ser Glu Leu Ala Ser Gly			
470	475	480	485
cct ccc      taactgggc cccgctggtc ccatttgctc attagaattt cctctcacat			1550
Pro Pro			
cagtgggata cagaattcag tttctccctt gccaggtcct tggatggtt gaccctgcc			1610
tctgcagtag ccttttgta gtctgctaag gtagctctca cacacctcgg ctctggggtt			1670
gatacctgag cctgcaatag agccctgaaa tcaagagcat ggctttagtgc tgtgaatatg			1730
atgtgtgcac atgcttaatg agcgtgcaag tgtgcacacg tttgtggaga ggagggtgtt			1790
ctggcctgag aaggtaaaga agaggcatgt ccagtatgct ttgcagggtg tttgtctct			1850
tttccatgcc catgcaaccc agattgggtt ggagcaggaa ggagctttt tctgttccc			1910
agcctcagaa ctcttgagct gtggcttact tgctgtttc accaggttca agctccgtgg			1970

# Sequence Listing

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gccacactgc tgctgtgcca agaaggtgta cagcctcccc aggatggggc ctcataaca	2030		
ccttcatctg cactcaacat ttaatcggtt ctttgctgtc tttttttttt cttttttttt	2090		
tgttagcaaa aacctctatt tagatttcaa taatcagaga agtgtaaaaat aaaacagatt	2150		
atattgtact tgaaaaaaaaaaaaaaaa	2178		
<210> 8			
<211> 487			
<212> PRT			
<213> Homo sapiens			
<400> 8			
Met Asp Gly Thr Glu Thr Arg Gln Arg Arg Leu Asp Ser Cys Gly Lys			
1	5	10	15
Pro Gly Glu Leu Gly Leu Pro His Pro Leu Ser Thr Gly Gly Leu Pro			
20	25	30	
Val Ala Ser Glu Asp Gly Ala Leu Arg Ala Pro Glu Ser Gln Ser Val			
35	40	45	
Thr Pro Lys Pro Leu Glu Thr Glu Pro Ser Arg Glu Thr Ala Trp Ser			
50	55	60	
Ile Gly Leu Gln Val Thr Val Pro Phe Met Phe Ala Gly Leu Gly Leu			
65	70	75	80
Ser Trp Ala Gly Met Leu Leu Asp Tyr Phe Gln His Trp Pro Val Phe			
85	90	95	
Val Glu Val Lys Asp Leu Leu Thr Leu Val Pro Pro Leu Val Gly Leu			
100	105	110	
Lys Gly Asn Leu Glu Met Thr Leu Ala Ser Arg Leu Ser Thr Ala Ala			
115	120	125	

## Sequence Listing

Asn Thr Gly Gln Ile Asp Asp Pro Gln Glu Gln His Arg Val Ile Ser  
130 135 140

Ser Asn Leu Ala Leu Ile Gln Val Gln Ala Thr Val Val Gly Leu Leu  
145 150 155 160

Ala Ala Val Ala Ala Leu Leu Leu Gly Val Val Ser Arg Glu Glu Val  
165 170 175

Asp Val Ala Lys Val Glu Leu Leu Cys Ala Ser Ser Val Leu Thr Ala  
180 185 190

Phe Leu Ala Ala Phe Ala Leu Gly Val Leu Met Val Cys Ile Val Ile  
195 200 205

Gly Ala Arg Lys Leu Gly Val Asn Pro Asp Asn Ile Ala Thr Pro Ile  
210 215 220

Ala Ala Ser Leu Gly Asp Leu Ile Thr Leu Ser Ile Leu Ala Leu Val  
225 230 235 240

Ser Ser Phe Phe Tyr Arg His Lys Asp Ser Arg Tyr Leu Thr Pro Leu  
245 250 255

Val Cys Leu Ser Phe Ala Ala Leu Thr Pro Val Trp Val Leu Ile Ala  
260 265 270

Lys Gln Ser Pro Pro Ile Val Lys Ile Leu Lys Phe Gly Trp Phe Pro  
275 280 285

Ile Ile Leu Ala Met Val Ile Ser Ser Phe Gly Gly Leu Ile Leu Ser  
290 295 300

Lys Thr Val Ser Lys Gln Gln Tyr Lys Gly Met Ala Ile Phe Thr Pro  
305 310 315 320

Val Ile Cys Gly Val Gly Gly Asn Leu Val Ala Ile Gln Thr Ser Arg  
325 330 335

Ile Ser Thr Tyr Leu His Met Trp Ser Ala Pro Gly Val Leu Pro Leu

## Sequence Listing

340                    345                    350  
Gln Met Lys Lys Phe Trp Pro Asn Pro Cys Ser Thr Phe Cys Thr Ser  
355                    360                    365  
  
Glu Ile Asn Ser Met Ser Ala Arg Val Leu Leu Leu Val Val Pro  
370                    375                    380  
  
Gly His Leu Ile Phe Phe Tyr Ile Ile Tyr Leu Val Glu Gly Gln Ser  
385                    390                    395                    400  
  
Val Ile Asn Ser Gln Thr Phe Val Val Leu Tyr Leu Leu Ala Gly Leu  
405                    410                    415  
  
Ile Gln Val Thr Ile Leu Leu Tyr Leu Ala Glu Val Met Val Arg Leu  
420                    425                    430  
  
Thr Trp His Gln Ala Leu Asp Pro Asp Asn His Cys Ile Pro Tyr Leu  
435                    440                    445  
  
Thr Gly Leu Gly Asp Leu Leu Gly Thr Gly Leu Leu Ala Leu Cys Phe  
450                    455                    460  
  
Phe Thr Asp Trp Leu Leu Lys Ser Lys Ala Glu Leu Gly Gly Ile Ser  
465                    470                    475                    480  
  
Glu Leu Ala Ser Gly Pro Pro  
485

<210> 9  
<211> 1616  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (31)..(1551)  
<223> Clone IE4

# Sequence Listing

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<400>	9															
ccgggctgcc	aggcgccccag	ctgtgcccag	atg	gat	ggg	aca	gag	acc	cgg	cag		54				
			Met	Asp	Gly	Thr	Glu	Thr	Arg	Gln						
			1					5								
cg	agg	ctg	gac	agc	tgt	ggc	a	cc	gg	gag	ctg	gg	ctt	cct	cac	102
Arg	Arg	Leu	Asp	Ser	Cys	Gly	Lys	Pro	Gly	Glu	Leu	Gly	Leu	Pro	His	
10		15						20								
ccc	ctc	agc	aca	gga	gga	ctc	cct	gta	gcc	tca	gaa	gat	gga	gct	ctc	150
Pro	Leu	Ser	Thr	Gly	Gly	Leu	Pro	Val	Ala	Ser	Glu	Asp	Gly	Ala	Leu	
25		30						35			40					
agg	gcc	cct	gag	agc	caa	agc	gt	acc	ccc	aag	cca	ctg	gag	act	gag	198
Arg	Ala	Pro	Glu	Ser	Gln	Ser	Val	Thr	Pro	Lys	Pro	Leu	Glu	Thr	Glu	
45		50						55								
cct	agc	agg	gag	acc	gcc	tgg	tcc	ata	ggc	ctt	cag	gtg	acc	gtg	ccc	246
Pro	Ser	Arg	Glu	Thr	Ala	Trp	Ser	Ile	Gly	Leu	Gln	Val	Thr	Val	Pro	
60		65						70								
ttc	atg	ttt	gca	ggc	ctg	gga	ctg	tcc	tgg	gcc	ggc	atg	ctt	ctg	gac	294
Phe	Met	Phe	Ala	Gly	Leu	Gly	Leu	Ser	Trp	Ala	Gly	Met	Leu	Leu	Asp	
75		80						85								
tat	ttc	cag	cac	tgg	cct	gtg	ttt	gtg	gag	gtg	aaa	gac	ctt	ttg	aca	342
Tyr	Phe	Gln	His	Trp	Pro	Val	Phe	Val	Glu	Val	Lys	Asp	Leu	Leu	Thr	
90		95						100								
ttg	gtg	ccg	ccc	ctg	gtg	ggc	ctg	aag	ggg	aac	ctg	gag	atg	aca	ctg	390
Leu	Val	Pro	Pro	Leu	Val	Gly	Leu	Lys	Gly	Asn	Leu	Glu	Met	Thr	Leu	
105		110						115			120					
gca	tcc	aga	ctc	tcc	aca	gct	gcc	aac	act	gga	caa	att	gat	gac	ccc	438
Ala	Ser	Arg	Leu	Ser	Thr	Ala	Ala	Asn	Thr	Gly	Gln	Ile	Asp	Asp	Pro	
125		130						135								
cag	gag	cac	aga	gtc	atc	agc	agc	aac	ctg	gcc	ctc	atc	cag	gtg		486
Gln	Glu	Gln	His	Arg	Val	Ile	Ser	Ser	Asn	Leu	Ala	Leu	Ile	Gln	Val	

# Sequence Listing

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140	145	150	
cag gcc act gtc gtg ggg ctc ttg gct gct gtg gct gcg ctg ctg ttg Gln Ala Thr Val Val Gly Leu Leu Ala Ala Val Ala Ala Leu Leu Leu			534
155	160	165	
ggc gtg gtg tct cga gag gaa gtg gat gtc gcc aag gtg gag ttg ctg Gly Val Val Ser Arg Glu Glu Val Asp Val Ala Lys Val Glu Leu Leu			582
170	175	180	
tgt gcc agc agt gtc ctc act gcc ttc ctt gca gcc ttt gcc ctg ggg Cys Ala Ser Ser Val Leu Thr Ala Phe Leu Ala Ala Phe Ala Leu Gly			630
185	190	195	200
gtg ctg atg gtc tgt ata gtg att ggt gct cga aag ctc ggg gtc aac Val Leu Met Val Cys Ile Val Ile Gly Ala Arg Lys Leu Gly Val Asn			678
205	210	215	
cca gac aac att gcc acg ccc att gca gcc agc ctg gga gac ctc atc Pro Asp Asn Ile Ala Thr Pro Ile Ala Ala Ser Leu Gly Asp Leu Ile			726
220	225	230	
aca ctg tcc att ctg gct ttg gtt agc agc ttc ttc tac aga cac aaa Thr Leu Ser Ile Leu Ala Leu Val Ser Ser Phe Phe Tyr Arg His Lys			774
235	240	245	
gat agt cgg tat ctg acg ccg ctg gtc tgc ctc agc ttt gcg gct ctg Asp Ser Arg Tyr Leu Thr Pro Leu Val Cys Leu Ser Phe Ala Ala Leu			822
250	255	260	
acc cca gtg tgg gtc ctc att gcc aag cag agc cca ccc atc gtg aag Thr Pro Val Trp Val Leu Ile Ala Lys Gln Ser Pro Pro Ile Val Lys			870
265	270	275	280
atc ctg aag ttt ggc tgg ttc cca atc atc ctg gcc atg gtc atc agc Ile Leu Lys Phe Gly Trp Phe Pro Ile Ile Leu Ala Met Val Ile Ser			918
285	290	295	
agt ttc gga gga ctc atc ttg agc aaa acc gtt tct aaa cag cag tac Ser Phe Gly Gly Leu Ile Leu Ser Lys Thr Val Ser Lys Gln Gln Tyr			966

# Sequence Listing

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300	305	310	
aaa ggc atg gcg ata ttt acc ccc gtc ata tgt ggt gtt ggt ggc aat Lys Gly Met Ala Ile Phe Thr Pro Val Ile Cys Gly Val Gly Asn			
315	320	325	
ctg gtg gcc att cag acc agc cga atc tca acc tac ctg cac atg tgg Leu Val Ala Ile Gln Thr Ser Arg Ile Ser Thr Tyr Leu His Met Trp			
330	335	340	
agt gca cct ggc gtc ctg ccc ctc cag atg aag aaa ttc tgg ccc aac Ser Ala Pro Gly Val Leu Pro Leu Gln Met Lys Lys Phe Trp Pro Asn			
345	350	355	1110
360			
ccg tgt tct act ttc tgc acg tca gaa atc aat tcc atg tca gct cga Pro Cys Ser Thr Phe Cys Thr Ser Glu Ile Asn Ser Met Ser Ala Arg			
365	370	375	1158
gtc ctg ctc ttg ctg gtg gtc cca ggc cat ctg att ttc ttc tac atc Val Leu Leu Leu Val Val Pro Gly His Leu Ile Phe Phe Tyr Ile			
380	385	390	1206
atc tac ctg gtg gag ggt cag tca gtc ata aac agc cag acc ttt gtg Ile Tyr Leu Val Glu Gly Gln Ser Val Ile Asn Ser Gln Thr Phe Val			
395	400	405	1254
gtg ctc tac ctg gca ggc ctg atc cag gtg aca atc ctg ctg tac Val Leu Tyr Leu Leu Ala Gly Leu Ile Gln Val Thr Ile Leu Leu Tyr			
410	415	420	1302
ctg gca gaa gtg atg gtt cgg ctg act tgg cac cag gcc ctg gat cct Leu Ala Glu Val Met Val Arg Leu Thr Trp His Gln Ala Leu Asp Pro			
425	430	435	440
440			
gac aac cac tgc atc ccc tac ctt aca ggg ctg ggg gac ctg ctc ggt Asp Asn His Cys Ile Pro Tyr Leu Thr Gly Leu Gly Asp Leu Leu Gly			
445	450	455	1398
tca agc tcc gtg ggc cac act gct gct gtg cca aga agg tgt aca gcc Ser Ser Ser Val Gly His Thr Ala Ala Val Pro Arg Arg Cys Thr Ala			

## **Sequence Listing**

tcc cca gga tgg ggc ctc ata caa ccc ttc atc tgc act caa cat tta 1494  
 Ser Pro Gly Trp Gly Leu Ile Gln Pro Phe Ile Cys Thr Gln His Leu  
           475              480              485

atc gtg tcc ttg ctg tct ttt tat ttt cct ttt tgt ttg tta gca aaa 1542  
Ile Val Ser Leu Leu Ser Phe Tyr Phe Pro Phe Cys Leu Leu Ala Lys  
490 . . . . . . . . . . . .  
495 . . . . . . . . . . . .  
500 . . . . . . . . . . . .

acc tct att tagatttca ataatcagag aagtgtaaaa taazacagat tatattgtaa 1600  
Thr Ser Ile  
505

aaaaaaaaaaaa aaaaaaa 1616

<210> 10  
<211> 507  
<212> PRT  
<213> *Homo sapiens*

<400> 10  
Met Asp Gly Thr Glu Thr Arg Gln Arg Arg Leu Asp Ser Cys Gly Lys  
1 5 10 15

Pro Gly Glu Leu Gly Leu Pro His Pro Leu Ser Thr Gly Gly Leu Pro  
20 25 30

Val Ala Ser Glu Asp Gly Ala Leu Arg Ala Pro Glu Ser Gln Ser Val  
35 40 45

Thr Pro Lys Pro Leu Glu Thr Glu Pro Ser Arg Glu Thr Ala Trp Ser  
50 55 60

Ile Gly Leu Gln Val Thr Val Pro Phe Met Phe Ala Gly Leu Gly Leu  
65 70 75 80

Ser Trp Ala Gly Met Leu Leu Asp Tyr Phe Gln His Trp Pro Val Phe  
85 90 95

## Sequence Listing

Val Glu Val Lys Asp Leu Leu Thr Leu Val Pro Pro Pro Leu Val Gly Leu  
100 105 110

Lys Gly Asn Leu Glu Met Thr Leu Ala Ser Arg Leu Ser Thr Ala Ala  
115 120 125

Asn Thr Gly Gln Ile Asp Asp Pro Gln Glu Gln His Arg Val Ile Ser  
130 135 140

Ser Asn Leu Ala Leu Ile Gln Val Gln Ala Thr Val Val Gly Leu Leu  
145 150 155 160

Ala Ala Val Ala Ala Leu Leu Leu Gly Val Val Ser Arg Glu Glu Val  
165 170 175

Asp Val Ala Lys Val Glu Leu Leu Cys Ala Ser Ser Val Leu Thr Ala  
180 185 190

Phe Leu Ala Ala Phe Ala Leu Gly Val Leu Met Val Cys Ile Val Ile  
195 200 205

Gly Ala Arg Lys Leu Gly Val Asn Pro Asp Asn Ile Ala Thr Pro Ile  
210 215 220

Ala Ala Ser Leu Gly Asp Leu Ile Thr Leu Ser Ile Leu Ala Leu Val  
225 230 235 240

Ser Ser Phe Phe Tyr Arg His Lys Asp Ser Arg Tyr Leu Thr Pro Leu  
245 250 255

Val Cys Leu Ser Phe Ala Ala Leu Thr Pro Val Trp Val Leu Ile Ala  
260 265 270

Lys Gln Ser Pro Pro Ile Val Lys Ile Leu Lys Phe Gly Trp Phe Pro  
275 280 285

Ile Ile Leu Ala Met Val Ile Ser Ser Phe Gly Gly Leu Ile Leu Ser  
290 295 300

## Sequence Listing

Lys Thr Val Ser Lys Gln Gln Tyr Lys Gly Met Ala Ile Phe Thr Pro  
305 310 315 320

Val Ile Cys Gly Val Gly Gly Asn Leu Val Ala Ile Gln Thr Ser Arg  
325 330 335

Ile Ser Thr Tyr Leu His Met Trp Ser Ala Pro Gly Val Leu Pro Leu  
340 345 350

Gln Met Lys Lys Phe Trp Pro Asn Pro Cys Ser Thr Phe Cys Thr Ser  
355 360 365

Glu Ile Asn Ser Met Ser Ala Arg Val Leu Leu Leu Val Val Pro  
370 375 380

Gly His Leu Ile Phe Phe Tyr Ile Ile Tyr Leu Val Glu Gly Gln Ser  
385 390 395 400

Val Ile Asn Ser Gln Thr Phe Val Val Leu Tyr Leu Leu Ala Gly Leu  
405 410 415

Ile Gln Val Thr Ile Leu Tyr Leu Ala Glu Val Met Val Arg Leu  
420 425 430

Thr Trp His Gln Ala Leu Asp Pro Asp Asn His Cys Ile Pro Tyr Leu  
435 440 445

Thr Gly Leu Gly Asp Leu Leu Gly Ser Ser Ser Val Gly His Thr Ala  
450 455 460

Ala Val Pro Arg Arg Cys Thr Ala Ser Pro Gly Trp Gly Leu Ile Gln  
465 470 475 480

Pro Phe Ile Cys Thr Gln His Leu Ile Val Ser Leu Leu Ser Phe Tyr  
485 490 495

Phe Pro Phe Cys Leu Leu Ala Lys Thr Ser Ile  
500 505